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ABSTRACT

The national survey examined a probability sample of 7,417 children 6 to 11 years of age to provide estimates showing regional, racial, and socioeconomic differentials in the prevalence of ear, nose, and throat pathology and hearing problems. Data were obtained by means of a medical examination by a staff pediatrician and a medical history obtained from the child's parents. Principle findings included the following: abnormalities of the eardrum were found about as often among white children as Negro children but more frequently among children from the South and from rural areas; conditions indicative of past or present infection were found more frequently among white than Negro children, among children from the South, and among children from rural areas; complete occlusion of the drum by cerumen was found more frequently among Negro children and children from the South; tonsils were found to be removed more frequently among white children, children not from the South, and children in families with incomes greater than $5,000; a history of ear infection and ear injury was reported more frequently among white than Negro children; trouble hearing was reported more frequently among children in the South; children in rural areas more frequently had a history of ear and hearing problems than children living in urban areas; and the prevalence of trouble hearing was greatest among children from families where income and parent education level was lowest. (DB)

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Hearing and Related Medical Findings Among Children:

Race, Area, and Socioeconomic Differentials United States

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Public Health Service
Health Services and Mental Health Administration

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Series 11 reports present findings from the National Health Examination Survey, which obtains data through direct examination, tests, and measurements of samples of the U.S. population. Reports 1 through 38 relate to the adult program. Additional reports concerning this program will be forthcoming and will be numbered consecutively. The present report is one of a number of reports of findings from the children and youth programs, Cycles II and III of the Health Examination Survey. These reports, emanating from the same survey mechanism, are being published in Series 11 but are numbered consecutively beginning with 101. It is hoped this will guide users to the data in which they are interested.

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Data from the
NATIONAL HEALTH SURVEY

Series 11
Number 122

Hearing and Related Medical Findings Among Children:

Race, Area, and Socioeconomic Differentials United States

The prevalence of ear, nose, and throat abnormalities and history of hearing or ear problems among children 6-11 years of age showing differentials by race, region, urban-rural, family income, and education of parent.

DHEW Publication No, (HSM) 73 - 1604

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service

Health Services and Mental Health Administration
National Center for Health Statistics
Rockville, Md. October 1972

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COOPERATION OF THE BUREAU OF THE CENSUS

In accordance with specifications established by the National Health Survey, the Bureau of the Census, under a contractual agreement, participated in the design and selection of the sample, and carried out the first stage of the field interviewing and certain parts of the statistical processing.

Vital and Health Statistics-Series 11-No. 122

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HEARING AND RELATED MEDICAL FINDINGS AMONG CHILDREN:

Race, Area, and Socioeconomic Differentials

Jean Roberts, *Division of Health Examination Statistics*

INTRODUCTION

Included in this second report on the ear, nose, and throat (ENT) findings are national estimates showing regional, racial, and socioeconomic differentials in the prevalence of ENT pathology and hearing problems among children 6-11 years of age as determined in the Health Examination Survey of 1963-65.

The Health Examination Survey is one of the major programs of the National Center for Health Statistics, authorized by Congress under the National Health Survey Act of 1956 as a continuing Public Health Service function to determine the health status of the population.

Three different survey programs are used in the National Health Survey.[1] The Health Interview Survey, in which health information is collected from samples of people by household interview, is focused primarily on the impact of illness and disability within various population groups. The Health Resources Division obtains health data as well as health resource and utilization information through surveys of hospitals, nursing homes and other resident institutions, and the entire range of personnel in the health occupations. The Health Examination Survey, from which the data in this report derive, collects health data by direct physical examination, tests, and measurements performed on samples of the population. This latter program provides the best way of obtaining actual diagnostic data on the prevalence of medically defined illnesses. It is the only way to secure information on unrecognized and undiagnosed conditions and on a variety of physical, physiological, and psychological measures within the population under study to which the examination findings, as well as the demographic and socioeconomic data, may be related.

The Health Examination Survey is conducted as a series of separate programs or cycles, each of which is limited to some specific segment of the U.S. population and to specific aspects of health. In the first cycle as previously described, the prevalence of certain chronic diseases and the distribution of various physical and physiological measures were determined among a defined adult population.[2,3]

For the second cycle, on which this report is based, a probability sample of the noninstitutionalized children 6-11 years of age in the United States was selected and examined. The examination consisted primarily of an assessment of health factors related to growth and development. It included an examination by a pediatrician and a dentist, tests administered by a psychologist, and a variety of tests and measurements by a technician. The survey plan, sample design, examination content, and operation of the survey have been described previously.[4]

Field collection operations for this cycle, started in July 1963, were completed in December 1965. Of the 7,417 selected in the sample, 7,119 children, or 96 percent, were examined. This national sample, as well as the group examined, is closely representative of the roughly 24 million noninstitutionalized children

6-11 years of age in the United States with respect to age, sex, race, region, population in place of residence, and rate of change in size of place of residence from 1950 to 1960.

During his single visit, each child was given a standardized examination by the examining team in the mobile units especially designed for use in the survey. Prior to this examination, demographic and socioeconomic data on household members as well as medical history, behavioral, and related data on the child to be examined were obtained from his parents, usually his mother. Ancillary data were requested from the school attended by the child including his grade placement, teacher's ratings of his behavior and adjustment, and health problems known to his teacher. Birth certificates for each child were obtained for verification of his age and information related to his condition at birth.

Members of the Subcommittee on Hearing in Children of the Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology—Dr. Raymond E. Jordan, Chairman; Dr. Eldon L. Eagles, Executive Director; and others—were advisors to the Health Examination Survey in this part of the examination. Dr. Leo Doerfler and Mr. Kenneth Stewart of the University of Pittsburgh were responsible respectively for the training of the technicians in the testing of hearing and for the instrument calibration and environmental control aspects.

Previous publications from the hearing and related parts of the survey examination have included findings on hearing sensitivity of children by age and sex,[5] by demographic and socioeconomic characteristics,[6] and a first report with related medical findings giving national estimates only.[7]

Statistical notes on the survey design, reliability of the data, and sampling and measurement error are shown in appendix I. A previous publication contains a more complete description of the sample design and population estimation procedures used for this summary.[8]

Definitions of the demographic and socioeconomic factors included in this report are contained in appendix II.

THE EXAMINATION AND MEDICAL HISTORY

Each child was examined by the staff pediatrician with respect to abnormalities of the external ears, auditory canals, tympanic membranes, anterior nasal cavity, and oral pharynx including the tonsils, as previously described.[7] No attempt was made to remove the obstruction if the canal was partially or completely occluded by cerumen or cellular debris.

Prior to the examination, a self-administered medical history for the child had been obtained from his parents. The history included questions directly related to hearing and the conditions of the ears.[7]

Hearing thresholds were determined monaurally and individually at eight frequencies for these children by trained technicians within a specially constructed trailer in the mobile examining center, under carefully controlled conditions, as previously described.[5]

Recording forms for the parts of the ENT examination and the medical history items relating to hearing and conditions of the ears on which this report is based are contained in appendix III. Previous publications have included the recording forms for the audiometric test results and the basis for converting these results shown here in decibels re audiometric zero (ASA, 1951) to the 1964 ISO units.[5,6]

FINDINGS

This report describes and analyzes the racial, regional, area, income, and parent education differentials among children with respect to those aspects of their history of ear or hearing problems and their abnormal ear, nose, and throat examination findings which may eventually affect hearing and have shown the highest level of association with their actual hearing thresholds in this study.[6] Findings by race are limited to Negro and white children since the sample used for the survey was not large enough to give reliable estimates for the small heterogeneous group of other races.

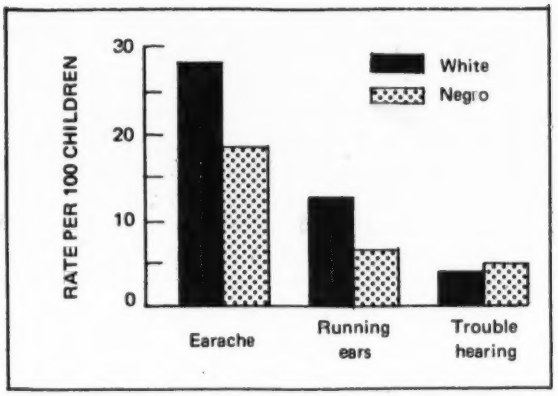

Figure 1. Prevalence rates per 100 white and Negro children 6-11 years with history of earaches, running ears, and trouble hearing: United States, 1963-65.

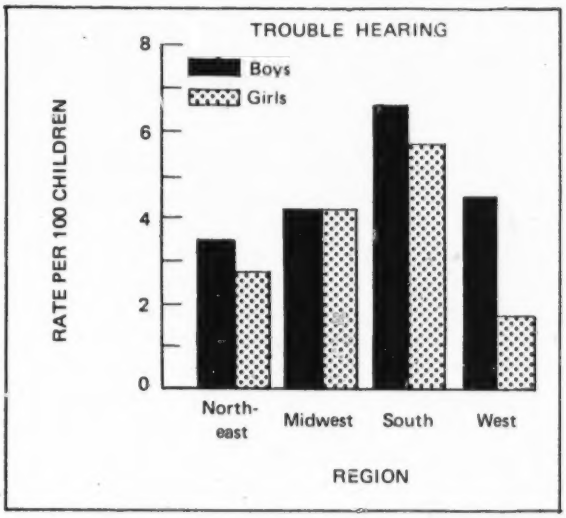

Figure 2. Prevalence rates per 100 boys and girls 6-11 years with a history of trouble hearing by region: United States, 1963-65.

Medical History

The prevalence of a history of critical ear and hearing difficulties among noninstitutionalized children 6-11 years in the United States in 1963-65 has been shown to be as follows: 4 percent with trouble hearing; 27 percent having had earaches; 12 percent, running ears; 2 percent with some injury or other damage to their ears; and 5 percent with some other ear trouble excluding an operation.[7] Only children with a history of trouble hearing were found to have significantly poorer hearing across all test frequencies than those who did not. Those with a history of earaches or ear discharge showed a similar pattern of reduced hearing sensitivity but the average difference between them and the normal group was not large enough to be statistically significant at the middle frequencies (2000 and 3000 Hertz).

Race.—The prevalence of ear infections and injuries, as reported by children's parents in the medical history, was significantly greater among white than Negro children in the noninstitutional population of the United States. Twenty-eight percent of white children had been known to have had an earache compared with 18 percent of Negro children. The corresponding rates for ear discharges were 12 and 7 percent; for ear injury, 3 and 1 percent; for drums opened or lanced, 3 and 1 percent; and for other ear trouble not including operations, 5 and 2 percent, respectively (table 1 and figure 1).

In contrast, for the history item most closely associated with the actual hearing threshold, "trouble hearing" was slightly more frequently reported among Negro than white children, though the rates—4.0 and 5.0 percent, respectively—do not differ significantly. This is consistent with the finding that hearing sensitivity was similar, on the average, for Negro and white children in this country.[6]

Region.—Trouble hearing was more frequently reported for children in the South than for those in other areas of the country (figure 2). The prevalence rate for this problem was significantly higher in the South (6.2 percent) than in the Northeast (3.2 percent) and West (3.2 percent) but only slightly higher than in the Midwest (4.2 percent) (table 2), similar to the findings with respect to actual hearing thresholds for these children by audiometric tests.[6]

Other history items concerning hearing or ear conditions that might eventually affect hearing show no consistent regional pattern. The prevalence of reported earaches, running ears, and ear injuries was slightly but not significantly

higher in the Midwest than other sections of the United States while the rate for those with eardrums lanced or otherwise opened was slightly higher in the West.

Place of residence.—Children in rural areas more often than those in urban communities were reported to have a history of earache or running ears. This pattern was generally consistent for boys and girls throughout the age range in the study. Trouble hearing was also found somewhat more often among those children in rural than urban areas, although the difference in these rates was negligible (table 3).

Socioeconomic status.—The prevalence of trouble hearing tended to be greater among children from the poorer, less well educated families. The highest rates were among those in families with an annual income of less than $3,000 and among those whose parents had completed less than 12 years of formal schooling (tables 3 and 4). The lowest rates were found among children from families with annual incomes of $10,000-$14,999, though the pattern by age was consistent only for the younger (6 and 7 years) and the older children (10 and 11 years).

Earaches and running ears, indicators of middle ear infection, were reported more frequently among children whose parents had more than 5 years of schooling than among those with less education, though the differences are not large enough to be considered statistically significant at the 5-percent probability level. The pattern in these rates with respect to the income level of the families was less consistent. Relatively fewer earaches were found among children in families with annual income of $10,000-$14,999, the prevalence rate being significantly lower than for those with higher or lower income. For the history of running ears, however, rates among those children in families with annual incomes of $15,000 or more were slightly but not significantly less than for those with lower incomes.

In general hearing trouble and earaches were less prevalent among children in families with annual income of $10,000 or more than others, in each region of the country except in the South, where the rate for hearing trouble was slightly lower for those whose annual family income was $5,000-$9,999 (figure 3).

In each region and income level, children whose parents cited a history of hearing difficulty for them had significantly higher thresholds (poorer hearing) at the essential speech range than those who did not have such a problem (table 5). This pattern was found among both boys and girls and generally across the age range in the study, however, the differences were generally but not consistently significant throughout.

Tympanic Membrane

From the otoscopic examination of the middle ears of children in this study, nearly 18 percent were found to have some abnormality of their tympanic membranes or eardrums. Nearly 9 percent had some degree of bulging or retraction of at least one drum while for about 7 percent at least one drum was not mobile, either condition usually being indicative of present or past infection. An additional 14 percent had at least one auditory canal so occluded, usually with cerumen, that examination of the drum was not possible. Children with such abnormal findings generally had significantly elevated hearing thresholds (poorer hearing).[7]

Since abnormalities of the drum were about as likely to be found in the right as the left ear and both were more likely to be involved than just one, consideration of racial, regional, and socioeconomic differentials are limited here to those with respect to the right ear only. The patterns will be similar for the left ear and for involvement of both ears.

Race.—Negro children were slightly less likely than white children to have some abnormality of their right drum, the prevalence rate being 15 per 100 among white children and 13 per 100 among Negro (table 6). Boys of the white, but not Negro, race were slightly more likely than girls to have such findings.

No significant age-related trend with respect to abnormal conditions of the drum was found among either racial group.

Specific abnormalities of bulging or retracted drum and lack of mobility of the drum

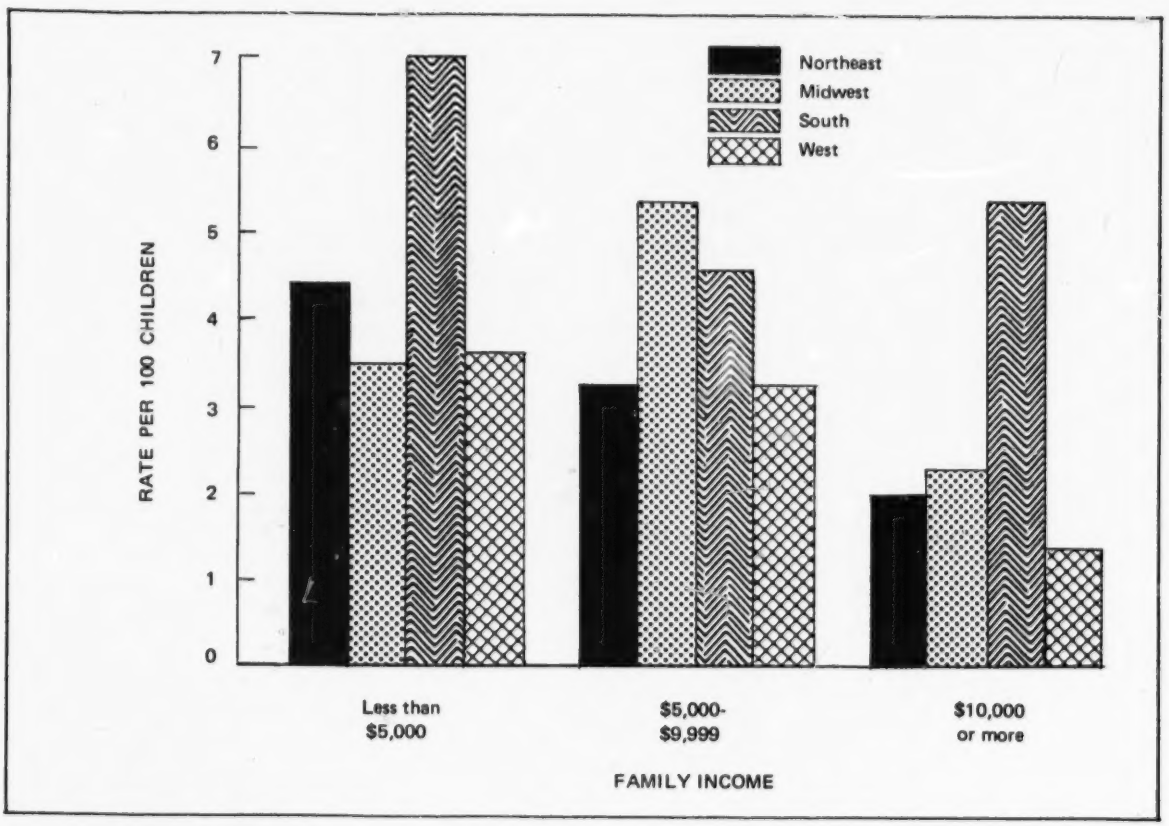

Figure 3. Prevalence rates per 100 children 6-11 years with history of trouble hearing by region and annual family income: United States, 1963-65.

were found more frequently among white than Negro children, while complete occlusion of the drum was found more often among Negro than white children. This pattern existed among both boys and girls and with one minor exception across the entire age range in the study, although the differences were not consistently large enough to be considered statistically significant throughout.

Region.—Abnormality of the right drum was slightly more prevalent among children living in the South (18 percent) and slightly less prevalent among those in the West and Midwest (14 percent) than in the Northeast region of the United States (table 7 and figure 4). The higher rates for Southern children were found among both boys and girls and across the entire age range in the study except at 8 and 11 years,

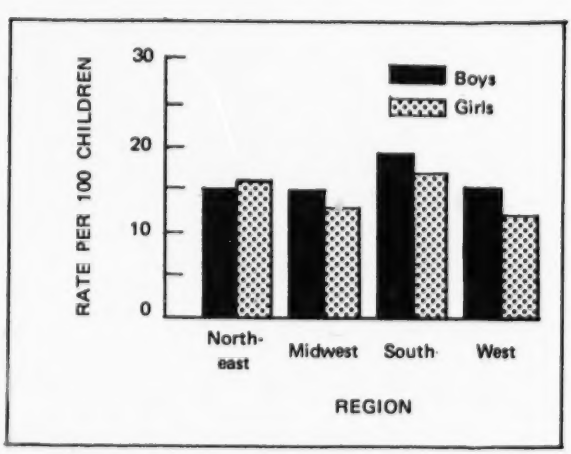

Figure 4. Prevalence rates per 100 boys and girls 6-11 years with abnormality of right drum found on examination by region: United States, 1963-65.

although the differences are not large enough to be considered statistically significant throughout. With respect to their actual hearing thresholds, children with some abnormality of the drum on the average had significantly poorer hearing than those whose drums were normal (table 8).

Specific abnormalities of bulging or retraction and lack of mobility of the drum were also slightly more prevalent among Southern children than those in other regions, while complete occlusion of the drum was found more frequently among children in the West and South than in other regions of the country.

Place of residence.—The prevalence of (right) drum abnormality was slightly higher among children in rural than those living in urban areas (table 9). The differential was slightly greater among boys than girls and among younger children (6 and 7 year olds) than the older age groups.

The specific abnormalities of bulging or retraction and lack of mobility of the drum were also found slightly more often among children in rural than urban areas, while complete occlusion of the drum was found about as often in one group as the other.

Socioeconomic status.—No consistent relationship was found for these children between the prevalence of abnormalities of the drum and the socioeconomic status of their families. The prevalence of any abnormality of the drum among them decreased slightly but consistently with the educational level of their parents; however, it was greater among those from families in the highest annual income level ($15,000 or more) and those in the lower income brackets (less than $7,000) than among

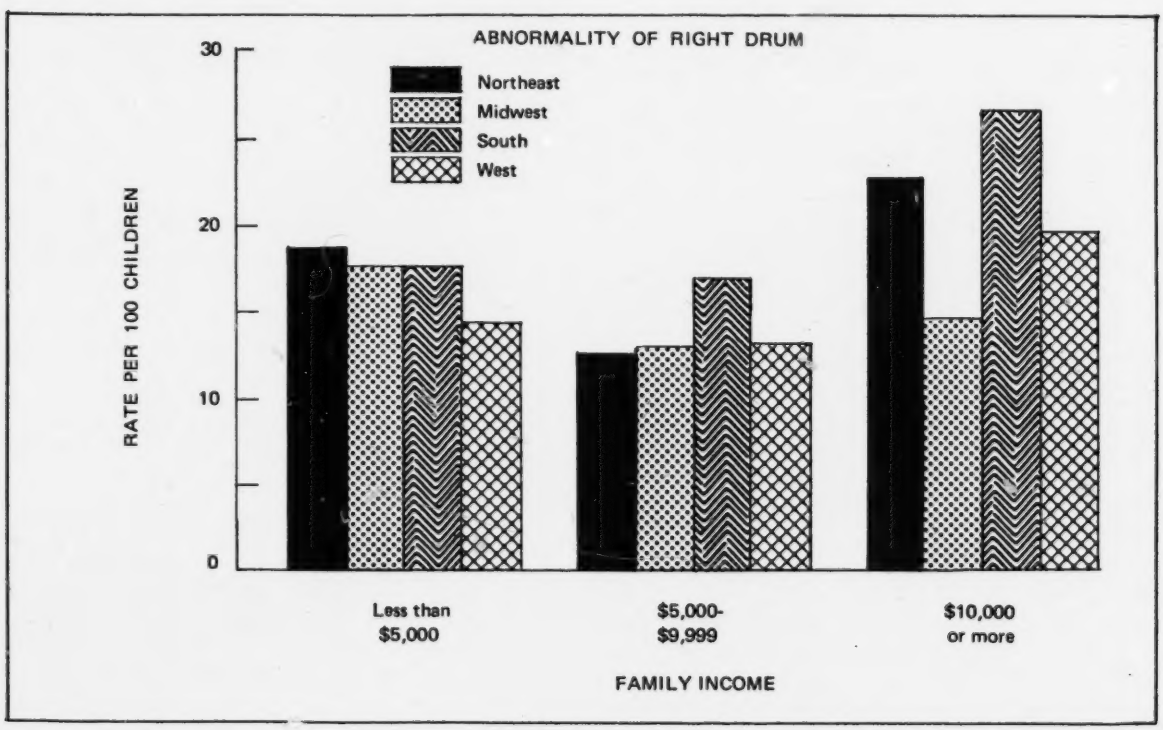

Figure 5. Prevalence rates per 100 children 6-11 years with abnormality of right drum found on examination by region and annual family income: United States, 1963-65.

those in the middle income levels (tables 9 and 10).

The pattern with respect to the specific types of the more prevalent middle ear abnormalities is even less distinct.

In all four regions of the country, middle ear abnormalities were less prevalent among those from middle income families ($5,000-$9,999 per year) than among those from families with higher or lower incomes (figure 5), the differential being greater in the Northeast than elsewhere.

Tonsils

Examination of the tonsils of children 6-11 years of age in this country showed, as previously indicated,[7] that for an estimated 42 percent these glands were essentially normal, for 34 percent the tonsils were enlarged to extend beyond the pillars but not touch, while for 1 percent the two glands were enlarged to the degree that they touched at midline. For nearly 14 percent the glands had been completely removed while for the remaining 10 percent removal was only partial, with tags remaining. No association was found in this study between hearing sensitivity and condition of the tonsils.[7]

Race.—Substantially more white than Negro children had had their tonsils completely or partially removed (table 11 and figure 6). The differences in the proportion who had such surgery was large enough to be statistically significant at the 1-percent probability level for both boys and girls and at each year of age. The rate with complete removal was 16 percent among white children compared with 3 percent among the Negro while for those with tonsillar tags, the respective rates were nearly 11 and 4 percent.

Negro children, however, were more likely to have normal or slightly enlarged tonsils than were white children of this age. The normal rate was 50 percent for Negro children compared with 40 percent for white, while 43 percent of Negro children in contrast to 32 percent of white children had slightly enlarged tonsils. Only for the latter group (those with enlarged tonsils) is the difference in rates large enough to be considered statistically significant at the 5-percent probability level for the total group and for boys. No consistent age-related trend is evident in these differences.

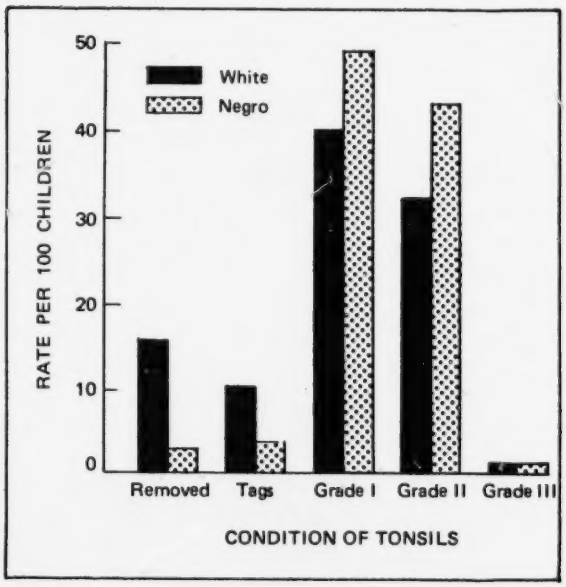

Figure 6. Prevalence rates per 100 white and Negro children 6-11 years by condition of tonsils: United States, 1963-65.

Severely enlarged tonsils were found as frequently among white children as Negro children—the rates being 1 percent among both groups.

Region.—The proportion of children with completely or partially removed tonsils was lower in the South than in other sections of the country, while relatively more children in that area had normal tonsils (table 12 and figure 7). With respect to complete removal, the rate for Southern children—8 percent—was significantly below that in the Northeast (18 percent) and Midwest (16 percent) but only slightly lower than in the West (13 percent). The rate for Southern children with tags present (3 percent) was significantly lower than for those in the other regions—16 percent in the West, 11 percent in the Northeast, and 8 percent in the Midwest. Half of the children in the South were found to have normal tonsils in contrast to 41 percent in the West, 39 percent in the Northeast, and 36 percent in the Midwest, however, only

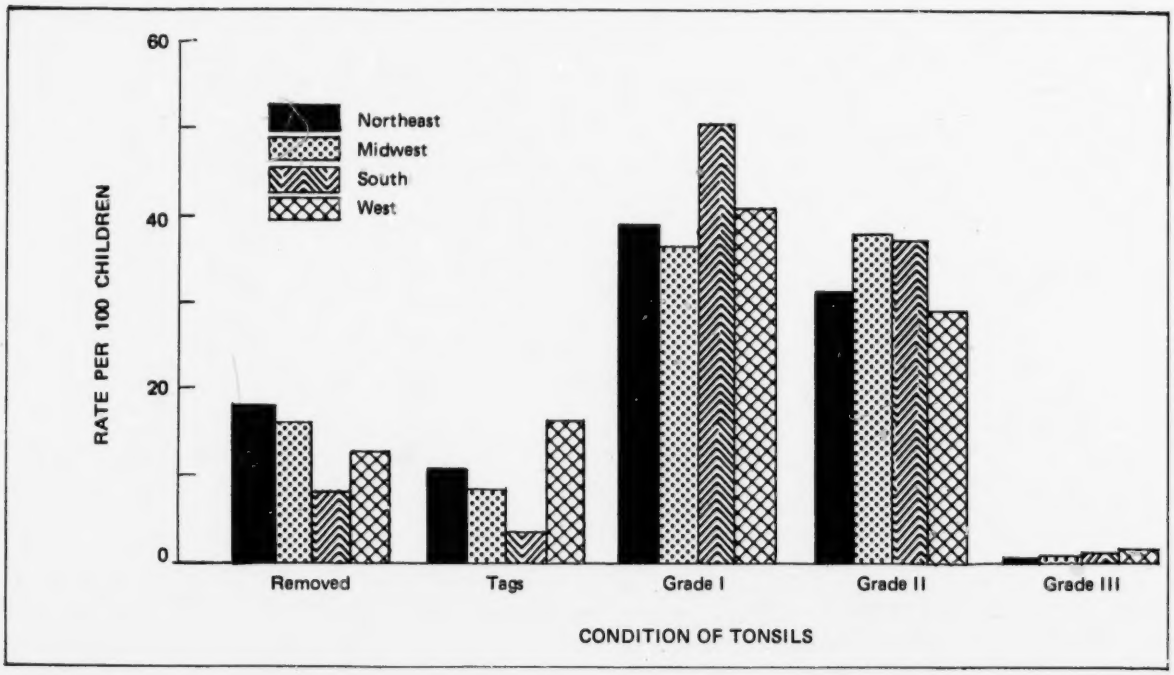

Figure 7. Prevalence rates per 100 children 6-11 years by condition of tonsils and region: United States, 1963-65.

for the extreme values here are the differences large enough to be considered statistically significant.

Slightly enlarged tonsils were found nearly as often among children in the South (37 percent) as those in the Midwest (38 percent) but somewhat less frequently among those in the Northeast (31 percent) and West (29 percent), though the differences in rates are not statistically significant.

Severely enlarged tonsils were found about as frequently among children in all four regions, the rate for those in the Northeast being just slightly lower than elsewhere.

Family income.—Children from the lower income families (less than $5,000 annual income) were more likely to have normal or only slightly enlarged tonsils but less likely to have had these glands partially or completely removed than those children from the higher income families ($5,000-$15,000 per year). For those from the highest income levels ($15,000 or more) the rates for removal and tags were slightly less and for normal and slightly enlarged were slightly more than for the moderate income groups (table 13 and figure 8).

Relatively fewer children from families with annual income of $15,000 or more in contrast to those from the lower income families were found to have severely enlarged tonsils. Negligible differences with respect to this rate were found among the other income levels and there was no other consistent income-related pattern.

Oral Pharynx

In the general examination of the oral pharynx, 10 percent of the children were rated as having some abnormality, the most frequent condition being swollen or hypertrophic lymphoid tissue on the posterior wall due usually to an allergy or common cold.[7]

The prevalence rates for such abnormal findings were consistently higher (but not significantly so) for white children than for

Negro children (10 percent as compared with 8 percent). The differential was found among both boys and girls and across the age range in this study (table 11).

Relatively more children from the Midwest (13 percent) and the West (12 percent) were found to have some abnormality of the oral pharynx than those from the South (7 percent) and Northeast (7 percent), though here too the difference in rates was not large enough to be considered statistically significant. This pattern was found among boys and girls and across the entire 6-11 year age range (table 12).

No consistent pattern was found for this type of abnormality among children with respect to their family's income. The prevalence among those in families of less than $3,000 per year was negligibly lower than for the rest (table 13).

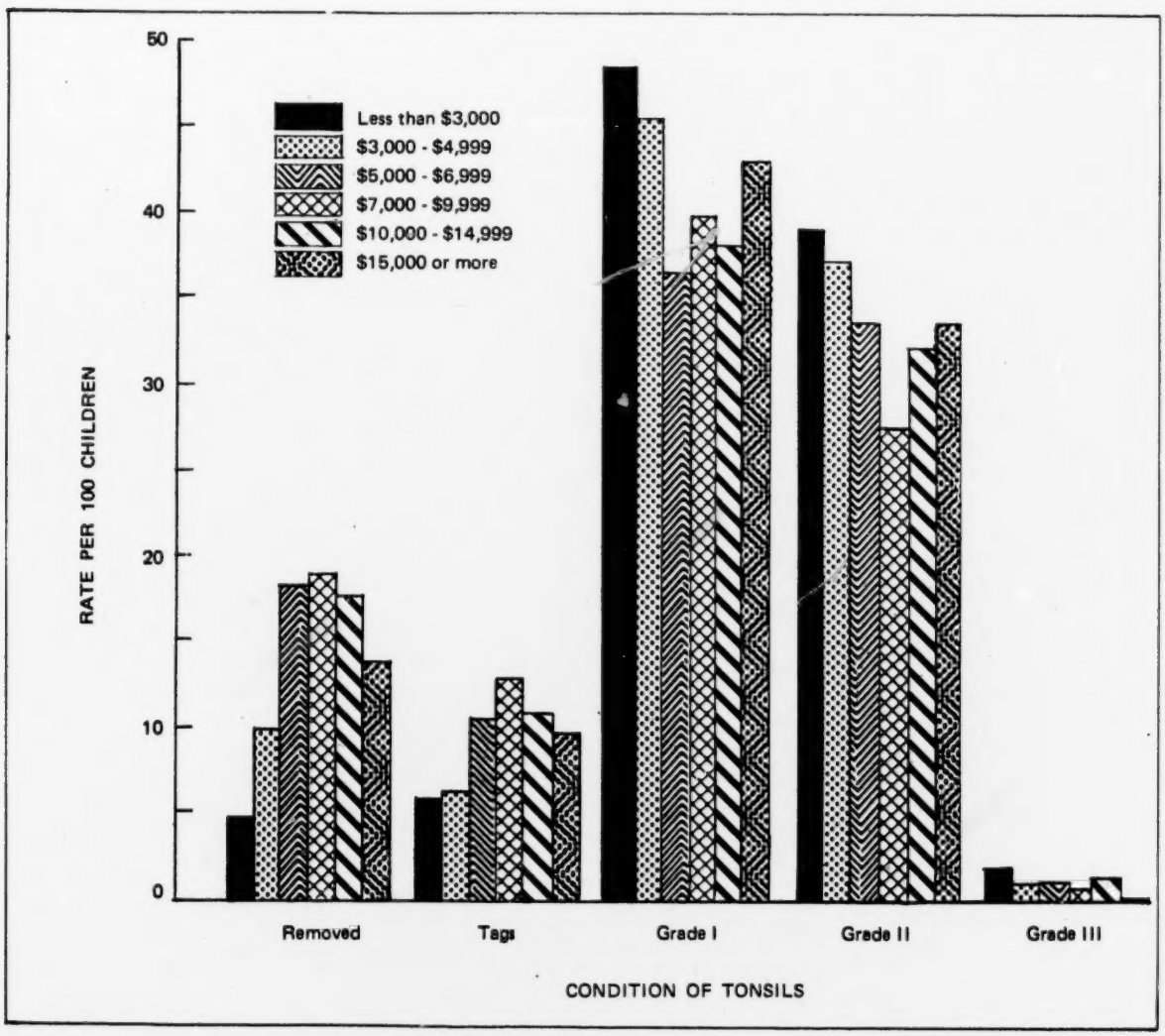

Figure 8. Prevalence rates per 100 children 6-11 years of age by condition of tonsils and annual income: United States, 1963-65.

SUMMARY

Regional, racial, and socioeconomic differentials in the prevalence of ear, nose, and throat pathology and hearing problems among noninstitutionalized children 6-11 years of age in the United States as determined in the Health Examination Survey of 1963-65 are included in this report.

For this Health Examination Survey among children, a probability sample of 7,417 children was selected to represent the nearly 24 million noninstitutionalized children of this age in the United States. Of these, the 7,119 or 96 percent examined were closely representative of the child population from which the sample was drawn with respect to age, sex, race, region, and other available demographic and socioeconomic variables.

Principal findings in this report—based on the physician's examination of the children's ears, nose, and throat; the supplemental medical history from the parent; and audiometric test results—are as follows:

1. Abnormalities of the eardrum were found about as often, on examination, among white children as Negro children but slightly more frequently among children from the South and those from rural areas. No consistent association was found between the presence of such conditions and the socioeconomic status of the family, though the prevalence tended to be slightly lower among those from families in the middle income brackets.
2. Conditions of bulging or retraction, indicative of present or past infection, were found slightly more frequently among white than Negro children, children from the South, and those from rural areas.
3. Complete occlusion of the drum by cerumen usually was found on examination slightly more frequently among Negro than white children and among those from the South than those from elsewhere.
4. Tonsils were found, on examination, to be completely or partially removed (tags remaining) more frequently among white than Negro children and less frequently among those from the South and those in families with annual income of less than $5,000.

   Normal and slightly enlarged tonsils were more often found among Negro than white children and among those from the South.
5. History of previous ear infection and ear injury were reported substantially more frequently among white than Negro children while trouble hearing, the history item most closely correlated with actual hearing threshold, was cited slightly less often among white than Negro children.
6. Trouble hearing was reported more frequently among children in the South than other regions of the country, similar to the findings of elevated mean hearing threshold (poorer hearing) from that sector.
7. Children in rural areas were reported to have a history of earaches, running ears, and trouble hearing more frequently than those living in urban communities, the differential being negligible, however, for trouble hearing.
8. The prevalence of trouble hearing tended to be greatest among children from families where income and parent education level was lowest.

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Table 1. Prevalence rates per 100 children with history of trouble hearing and other ear problems by race, age, and sex, with total standard errors: United States, 1963-65

Medical history item and race	Ages 6-11	Age in years						Boys 6-11 years	Girls 6-11 years	Total 6-11 years	Boys 6-11 years	Girls 6-11 years
		6	7	8	9	10	11					
Trouble hearing	Rate per 100 children									Standard error in percent		
White	4.0	3.8	4.4	3.2	4.6	4.1	4.2	4.6	3.4	0.35	0.42	0.46
Negro	5.0	2.4	5.5	3.6	8.0	6.7	6.0	4.9	5.1	0.82	1.29	1.26
Earaches												
White	27.9	30.1	32.6	26.5	26.9	26.3	24.5	26.0	30.0	0.93	1.09	1.09
Negro	18.3	16.0	18.4	18.0	15.8	22.5	19.5	16.0	20.6	1.34	1.94	1.47
Running ears												
White	12.5	12.6	15.4	11.9	12.0	13.2	9.5	12.9	12.0	0.53	0.59	0.68
Negro	7.4	9.4	10.0	6.6	7.2	7.0	3.8	6.5	8.4	0.86	1.29	1.18
Ear injury												
White	2.6	1.3	2.8	2.5	3.2	2.8	3.0	2.6	2.5	0.18	0.33	0.33
Negro	1.1	-	2.0	-	1.2	0.6	3.0	0.6	1.6	0.33	0.21	0.51
Drum opened												
White	3.2	3.6	3.4	3.0	3.2	3.6	2.6	3.6	2.8	0.39	0.52	0.36
Negro	1.3	3.2	0.8	1.2	0.8	0.5	1.4	0.8	1.8	0.26	0.30	0.47
Other ear trouble												
White	5.2	6.2	5.0	5.8	5.0	5.1	4.2	5.4	5.0	0.35	0.35	0.45
Negro	2.1	2.6	3.0	1.6	1.0	2.4	2.4	2.2	2.0	0.36	0.67	0.50

Table 2. Prevalence rates per 100 children with history of trouble hearing and other ear problems by region, age, and sex, with total standard errors: United States, 1963-65

Medical history item and region	Ages 6-11	Age in years						Boys 6-11 years	Girls 6-11 years	Total 6-11 years	Boys 6-11 years	Girls 6-11 years
		6	7	8	9	10	11					
Trouble hearing	Rate per 100 children									Standard error in percent		
Northeast	3.2	2.0	4.4	3.1	2.6	4.8	4.8	3.5	2.8	0.58	0.86	0.67
Midwest	4.2	3.4	5.4	3.5	3.5	5.0	4.4	4.2	4.2	0.70	0.92	0.57
South	6.2	5.4	4.9	6.4	8.2	6.3	5.2	6.6	5.7	0.90	0.89	1.23
West	3.2	3.4	2.8	2.0	4.8	1.9	3.8	4.5	1.7	0.41	0.96	0.74
Earaches												
Northeast	25.0	25.0	30.6	23.6	23.4	25.4	22.2	23.7	26.4	1.54	2.13	1.79
Midwest	30.1	34.6	32.0	30.0	29.2	24.9	31.0	28.4	32.0	1.04	1.18	1.83
South	27.6	30.5	30.0	27.6	25.4	31.0	20.0	25.7	29.6	1.26	1.63	1.81
West	23.0	22.8	29.8	19.8	23.6	23.2	20.8	20.5	25.9	1.34	1.41	1.83
Running ears												
Northeast	11.0	11.2	17.1	8.5	10.0	12.0	7.4	11.2	10.7	0.54	0.93	0.76
Midwest	13.2	17.8	16.2	13.0	9.2	12.8	10.1	13.5	12.8	1.11	1.29	1.32
South	11.2	11.4	11.0	12.6	12.1	13.3	6.8	11.2	11.2	1.33	1.56	1.21
West	11.7	8.8	14.8	10.2	15.4	11.4	10.6	12.0	11.3	0.61	0.60	1.24
Ear injury												
Northeast	1.5	0.6	2.1	1.2	1.2	2.0	2.3	1.7	1.4	0.30	0.57	0.39
Midwest	2.9	1.8	3.0	2.2	3.8	3.6	3.4	2.5	3.4	0.35	0.77	0.76
South	2.6	0.8	3.2	2.7	3.4	3.0	2.6	2.5	2.8	0.29	0.61	0.51
West	2.2	1.0	2.2	2.6	2.8	1.0	3.8	2.7	1.8	0.78	0.56	1.10
Drum opened												
Northeast	2.3	2.6	2.9	1.6	1.2	3.8	1.8	2.5	2.1	0.52	0.52	0.59
Midwest	3.0	4.4	2.4	3.0	3.0	3.2	1.8	3.1	2.9	0.53	0.77	0.66
South	2.4	3.1	2.4	2.4	2.4	2.0	2.2	2.6	2.2	0.37	0.76	0.61
West	4.1	4.4	3.6	3.8	4.4	3.7	3.9	4.7	3.4	1.09	1.57	0.69
Other ear trouble												
Northeast	5.1	5.4	5.7	4.2	5.6	6.2	3.3	6.0	4.2	0.47	0.44	0.61
Midwest	5.2	6.6	4.6	4.6	5.8	6.4	3.2	4.6	5.8	0.45	0.48	0.84
South	4.0	5.6	4.5	4.8	3.3	2.2	3.4	4.7	3.3	0.78	0.78	0.90
West	4.9	4.6	4.2	7.1	3.2	4.0	6.6	4.8	5.0	0.48	0.61	0.88

Table 3. Prevalence rates per 100 children with history of trouble hearing and other ear problems by urban or rural area of residence, years of schooling completed by parent, age, and sex, with total standard errors: United States, 1963-65

Medical history item, area of residence, and education of parent	Ages 6-11	Age in years						Boys 6-11 years	Girls 6-11 years	Total 6-11 years	Boys 6-11 years	Girls 6-11 years
		6	7	8	9	10	11					
Trouble hearing	Rate per 100 children									Standard error in percent		
Area of residence:												
Urban	4.0	3.9	3.6	3.3	4.3	4.8	4.4	4.5	3.6	0.43	0.56	0.63
Rural	4.5	3.0	6.2	3.2	5.5	3.8	5.3	5.1	3.8	0.63	0.61	0.81
Education of parent:												
Less than 5 years	4.0	1.5	5.1	7.1	5.6	4.9	-	4.4	3.5	0.94	1.13	1.22
5-11 years	5.2	4.3	5.4	3.5	5.4	6.8	6.0	6.2	4.3	0.52	0.64	0.69
12 years or more	3.3	3.3	3.6	2.2	4.1	2.7	4.2	3.5	3.1	0.33	0.38	0.49
Earaches												
Area of residence:												
Urban	25.6	26.1	29.4	25.2	25.5	23.9	23.3	23.5	27.8	0.81	1.08	1.17
Rural	28.6	32.2	32.6	25.4	25.5	30.4	24.7	26.8	30.3	1.19	1.83	1.55
Education of parent:												
Less than 5 years	24.5	19.6	27.8	26.1	19.0	34.8	19.6	20.2	28.8	3.38	2.63	5.23
5-11 years	27.0	30.2	27.6	27.1	27.9	25.3	23.8	25.5	28.4	1.07	1.41	1.19
12 years or more	26.8	28.1	33.2	23.6	25.2	25.6	24.6	24.6	29.2	0.94	1.05	1.21
Running ears												
Area of residence:												
Urban	10.6	11.7	11.3	10.9	10.0	11.4	8.2	10.2	11.0	0.60	0.74	0.65
Rural	14.2	13.3	20.8	11.7	14.3	14.3	9.9	15.7	12.6	0.64	0.75	1.03
Education of parent:												
Less than 5 years	9.1	10.5	14.0	8.1	4.5	14.5	3.0	9.1	9.1	2.34	3.23	2.34
5-11 years	12.9	14.6	15.2	10.1	13.2	14.4	9.9	12.8	12.9	0.89	1.02	1.02
12 years or more	11.3	10.8	13.9	12.1	10.7	10.8	9.0	11.7	10.8	0.49	0.68	0.79

Table 4. Prevalence rates per 100 children with history of trouble hearing and other ear problems by family income, age, and sex, with total standard errors: United States, 1963-65

Medical history item and annual family income	Ages 6-11	Age in years						Boys 6-11 years	Girls 6-11 years	Total 6-11 years	Boys 6-11 years	Girls 6-11 years
		6	7	8	9	10	11					
Trouble hearing	Rate per 100 children									Standard error in percent		
Less than $3,000	6.6	4.5	4.2	8.7	8.5	7.2	6.4	6.6	6.6	1.15	1.31	1.42
$3,000-$4,999	3.5	2.2	4.0	2.7	2.6	4.8	4.8	4.1	2.8	0.40	0.67	0.63
$5,000-$6,999	5.0	6.6	5.8	2.4	4.8	5.6	4.6	6.4	3.7	0.59	0.92	0.65
$7,000-$9,999	3.3	2.2	4.2	1.6	3.0	4.0	5.3	3.6	3.0	0.66	0.77	0.80
$10,000-$14,999	2.0	0.8	0.6	2.7	4.2	1.5	2.4	2.5	1.5	0.44	0.73	0.50
$15,000 or more	3.4	4.8	8.2	-	3.3	-	3.0	4.6	2.0	1.13	1.89	1.17
Earaches												
Less than $3,000	25.7	26.5	25.6	29.8	22.4	25.9	22.0	24.5	26.8	1.56	2.34	2.01
$3,000-$4,999	28.8	25.6	34.8	31.6	28.4	26.3	27.0	26.8	30.9	1.47	2.07	1.48
$5,000-$6,999	27.3	36.9	29.5	20.8	26.8	24.9	23.0	25.3	29.3	1.16	1.56	1.80
$7,000-$9,999	28.2	26.9	33.4	28.4	25.1	27.7	28.4	26.0	30.4	1.72	1.84	2.07
$10,000-$14,999	20.2	21.0	24.6	16.4	22.5	21.2	16.0	19.3	21.2	1.38	1.58	2.59
$15,000 or more	28.0	30.0	41.4	17.5	24.0	37.1	23.4	24.7	32.0	2.42	3.15	3.78
Running ears												
Less than $3,000	11.7	12.3	14.8	10.4	11.2	13.1	7.0	12.1	11.3	1.34	2.13	1.09
$3,000-$4,999	12.4	12.6	12.9	15.0	10.0	15.3	9.0	12.3	12.6	1.21	1.14	1.76
$5,000-$6,999	12.5	11.4	15.6	12.2	11.6	13.1	10.8	12.6	12.5	0.99	1.08	1.34
$7,000-$9,999	11.8	13.4	15.0	9.8	12.2	11.9	8.0	13.2	10.2	0.92	1.05	1.42
$10,000-$14,999	11.0	13.2	12.9	9.9	12.1	8.3	10.7	10.8	11.2	0.95	1.57	1.66
$15,000 or more	10.3	13.9	8.2	9.5	9.6	11.0	9.4	9.8	11.0	2.50	3.12	2.48

Table 5. Average hearing levels of children with and without a history of trouble hearing by region, family income, age, and sex, with total standard errors: United States, 1963-65

Hearing history, region, and annual family income	Ages 6-11	Age in years						Boys 6-11 years	Girls 6-11 years	Total 6-11 years	Boys 6-11 years	Girls 6-11 years
		6	7	8	9	10	11					
Trouble hearing	Average hearing levels in decibels re audiometric zero (ASA, 1951)									Standard error in dB		
Northeast	-4.0	-8.5	-2.0	-2.7	-0.3	-0.7	-9.1	-1.9	-6.4	1.35	2.60	0.95
Midwest	-3.2	-5.2	-2.0	-1.2	-2.7	-7.0	+0.4	-2.6	-3.7	1.00	2.10	1.90
South	-5.4	-5.0	-5.1	-6.6	-5.2	-5.5	-5.4	-6.1	-4.8	1.05	1.20	1.25
West	-4.3	-4.6	-2.8	-2.3	-2.6	-9.6	-5.4	-4.2	-4.6	1.80	2.50	2.75
Family income:												
Less than $3,000	-3.7	-3.2	-6.2	-2.8	-3.0	-2.6	-6.4	-1.9	-5.4	1.35	2.25	1.20
$3,000-$4,999	-7.6	-8.8	-2.8	-9.8	-8.9	-7.6	-9.4	-8.4	-6.4	0.90	0.95	1.65
$5,000-$6,999	-3.0	-6.0	-5.6	-0.4	-1.0	-5.2	+4.4	-3.4	-2.3	1.25	1.90	2.15
$7,000-$9,999	-3.9	-5.2	+4.0	-5.2	-6.5	-8.4	-5.0	-4.1	-3.7	1.75	2.00	2.85
$10,000-$14,999	-6.5	-7.5	+2.5	-5.6	-6.8	-4.3	-10.1	-6.0	-7.6	1.30	0.95	4.00
$15,000 or more	-3.9	-6.6	-2.2	-	-6.4	-	-2.0	-3.6	-4.6	2.20	2.00	14.30
No trouble hearing												
Geographic region:												
Northeast	-8.6	-7.4	-7.5	-8.6	-8.9	-9.8	-9.6	-8.2	-8.8	0.55	0.60	0.50
Midwest	-8.9	-7.4	-7.7	-9.0	-9.2	-9.6	-10.4	-8.7	-9.1	0.55	0.60	0.55
South	-8.1	-6.8	-7.4	-8.0	-8.4	-8.8	-9.3	-8.2	-8.0	0.45	0.40	0.55
West	-9.8	-8.2	-9.2	-9.4	-10.3	-11.6	-10.6	-9.6	-10.2	0.85	1.05	0.70
Family income:												
Less than $3,000	-8.0	-6.7	-7.6	-8.0	-7.8	-8.8	-9.1	-8.0	-8.0	0.40	0.50	0.35
$3,000-$4,999	-8.2	-6.7	-7.6	-8.6	-8.4	-9.2	-9.0	-8.2	-8.2	0.25	0.20	0.40
$5,000-$6,999	-8.9	-8.0	-8.6	-8.2	-9.4	-10.0	-9.6	-8.6	-9.2	0.30	0.35	0.30
$7,000-$9,999	-9.4	-7.8	-8.1	-9.6	-9.8	-10.2	-11.0	-9.2	-9.6	0.25	0.25	0.30
$10,000-$14,999	-9.4	-7.8	-7.6	-9.0	-10.2	-11.2	-10.6	-9.2	-9.7	0.25	0.40	0.35
$15,000 or more	-10.7	-9.2	-8.0	-9.9	-11.6	-12.2	-12.4	-10.2	-11.2	0.35	0.45	0.35

Table 6. Prevalence rates per 100 children of abnormal conditions found on examination of the right eardrum by race, age, and sex, with total standard errors: United States, 1963-65

Condition of right drum and race	Ages 6-11	Age in years						Boys 6-11 years	Girls 6-11 years	Total 6-11 years	Boys 6-11 years	Girls 6-11 years
		6	7	8	9	10	11					
Abnormal	Rate per 100 children									Standard error in percent		
White	15.4	16.9	17.2	14.8	14.6	13.8	14.5	16.4	14.2	1.39	1.40	1.61
Negro	12.8	9.7	14.8	10.7	12.0	13.3	16.5	12.4	13.1	1.94	2.02	2.27
Bulging or retracted												
White	7.5	9.2	7.6	6.6	7.0	7.2	7.6	8.1	6.9	1.03	1.04	1.13
Negro	4.8	2.7	5.8	4.1	4.7	4.4	7.4	5.1	4.5	1.72	1.92	1.74
Not mobile												
White	6.0	5.3	6.8	6.2	6.2	6.0	5.5	6.6	5.3	1.48	1.60	1.43
Negro	2.0	0.6	3.4	2.2	2.9	-	3.4	2.3	1.8	0.74	0.86	0.78
Completely occluded												
White	7.1	9.2	8.3	5.8	7.7	6.2	5.4	6.3	8.0	0.67	0.69	0.86
Negro	9.7	6.5	9.5	9.4	15.2	7.8	9.9	10.6	8.8	1.03	1.29	1.42

Table 7. Prevalence rates per 100 children of abnormal conditions found on examination of the right eardrum by region, age, and sex, with total standard errors: United States, 1963-65

Condition of right drum and region	Ages 6-11	Age in years						Boys 6-11 years	Girls 6-11 years	Total 6-11 years	Boys 6-11 years	Girls 6-11 years
		6	7	8	9	10	11					
	Rate per 100 children									Standard error in percent		
Abnormal												
Northeast	15.3	14.2	15.0	16.1	13.2	16.6	16.7	14.8	15.7	1.22	2.33	1.37
Midwest	13.7	15.2	15.2	13.8	13.8	11.2	12.8	14.6	12.7	2.22	1.68	3.12
South	17.7	18.0	20.0	15.0	17.5	20.4	15.2	19.1	16.2	3.29	2.92	3.72
West	13.6	15.6	16.1	12.2	13.2	8.4	15.2	15.0	12.0	2.64	3.47	2.25
Bulging or retracted												
Northeast	4.9	5.5	4.7	5.7	3.0	5.6	4.6	4.7	5.2	0.68	0.94	0.62
Midwest	8.0	10.8	7.0	8.6	8.3	6.5	6.8	8.6	7.3	1.64	1.59	1.86
South	11.4	12.3	12.4	8.2	11.0	12.3	12.6	12.4	10.4	3.31	3.50	3.21
West	3.9	3.8	4.6	2.0	3.8	2.8	6.1	4.7	2.9	0.98	1.53	0.43
Not mobile												
Northeast	2.6	3.3	3.1	2.7	1.3	3.0	2.3	2.9	2.3	0.86	0.57	1.28
Midwest	4.7	4.8	7.0	5.6	4.0	2.7	4.2	4.9	4.6	2.33	2.15	2.63
South	8.2	5.6	8.0	8.2	9.7	10.0	8.0	9.3	7.1	3.15	3.51	2.87
West	6.1	4.6	6.6	6.0	7.9	5.5	6.0	7.0	5.0	2.78	3.39	2.39
Completely occluded												
Northeast	6.7	6.3	9.4	4.8	8.4	5.8	4.9	5.9	7.4	0.65	0.76	0.83
Midwest	5.8	7.0	5.7	4.2	8.0	4.9	5.3	5.3	6.4	0.51	1.04	0.56
South	8.3	8.7	9.7	7.4	9.4	9.8	4.9	7.4	9.3	1.53	1.65	1.90
West	9.3	13.3	9.9	9.0	8.8	5.2	8.9	9.2	9.4	1.65	1.61	2.31

Table 8. Average hearing levels of children aged 6-11 years with examination findings of normal, abnormal, or completely occluded right eardrum by region and sex, with total standard errors: United States, 1963-65

Condition of right drum and region	Average hearing levels			Standard errors of average hearing levels		
	Total	Boys	Girls	Total	Boys	Girls
	Decibels re audiometric zero (ASA, 1951)					
Normal						
Northeast	-8.8	-8.4	-9.2	0.65	0.70	0.60
Midwest	-9.0	-8.8	-9.4	0.55	0.55	0.65
South	-8.2	-8.3	-8.1	0.50	0.40	0.55
West	-10.0	-9.6	-10.6	0.90	1.10	0.80
Abnormal						
Northeast	-6.8	-6.6	-7.0	0.95	1.40	0.60
Midwest	-6.8	-7.0	-6.6	1.00	0.90	1.85
South	-6.6	-6.2	-7.1	0.60	0.45	1.05
West	-7.8	-7.6	-8.2	0.85	1.25	1.15
Completely occluded						
Northeast	-7.4	-7.0	-7.6	0.75	0.70	0.90
Midwest	-7.7	-7.7	-7.7	0.30	0.70	0.65
South	-8.0	-9.0	-7.2	0.80	0.95	0.85
West	-9.3	-9.4	-9.2	1.15	1.25	1.45

Table 9. Prevalence rates per 100 children of abnormal conditions found on examination of the right eardrum by urban and rural place of residence, years of schooling completed by parent, age, and sex, with total standard errors: United States, 1963-65

Condition of right drum, area of residence, and education of parent	Ages 6-11	Age in years						Boys 6-11 years	Girls 6-11 years	Total 6-11 years	Boys 6-11 years	Girls 6-11 years
		6	7	8	9	10	11					
Abnormal	Rate per 100 children									Standard error in percent		
Area of residence:												
Urban	12.8	12.8	13.1	12.9	13.2	11.1	13.9	13.2	12.4	1.20	1.30	1.55
Rural	14.7	15.6	19.0	12.9	12.2	15.1	13.0	16.7	12.7	1.93	2.02	2.16
Education of parent:												
Less than 5 years	16.4	21.5	13.5	18.6	11.0	18.4	16.3	18.2	14.5	4.75	4.90	4.84
5-11 years	14.6	15.4	15.0	12.8	15.6	13.8	15.0	15.8	13.3	1.51	1.58	1.80
12 years or more	12.0	11.0	15.2	12.3	11.1	10.5	12.0	12.6	11.4	1.20	1.27	1.44
Bulging or retracted												
Area of residence:												
Urban	5.5	5.4	5.0	5.2	5.2	5.6	6.7	5.9	5.1	1.02	0.94	1.22
Rural	8.1	10.5	9.4	6.4	7.5	7.3	7.4	9.0	7.2	1.49	1.75	1.52
Education of parent:												
Less than 5 years	6.8	8.8	6.0	5.0	2.3	8.7	9.8	8.6	5.0	3.67	4.93	2.76
5-11 years	7.4	7.4	6.5	6.7	8.8	7.1	7.7	8.5	6.2	1.13	1.36	1.23
12 years or more	5.4	6.6	6.2	4.6	4.2	5.0	5.8	5.3	5.6	0.85	0.72	1.02
Not mobile												
Area of residence:												
Urban	5.1	4.2	5.7	5.7	5.3	5.0	4.8	5.5	4.7	1.11	1.15	1.21
Rural	6.0	5.3	7.4	5.5	6.3	5.5	5.8	7.0	4.9	2.08	2.67	1.66
Education of parent:												
Less than 5 years	7.6	6.2	7.1	12.0	3.5	10.9	6.6	9.6	5.4	2.86	4.50	2.58
5-11 years	4.8	4.3	4.3	3.8	6.6	4.4	5.3	5.8	3.7	---	---	---
12 years or more	5.7	4.7	7.6	6.3	5.5	5.0	5.0	5.7	5.6	1.50	1.50	1.61
Completely occluded												
Area of residence:												
Urban	7.6	8.6	9.2	6.5	9.1	5.4	6.6	7.1	8.1	0.96	0.66	1.62
Rural	7.3	9.5	7.3	5.9	7.9	8.2	4.8	6.6	8.0	0.95	0.64	1.62
Education of parent:												
Less than 5 years	11.0	16.0	11.2	5.8	12.7	9.4	10.1	9.3	12.8	2.13	1.57	3.41
5-11 years	7.5	8.0	8.5	7.6	9.8	5.8	5.5	6.7	8.4	---	---	---
12 years or more	7.0	8.6	8.2	5.5	7.0	6.5	5.9	6.8	7.2	---	---	---

Table 10. Prevalence rates per 100 children of abnormal conditions found on examination of the right eardrum by family income, age, and sex, with total standard errors: United States, 1963-65

Condition of right drum and annual family income	Ages 6-11	Age in years						Boys 6-11 years	Girls 6-11 years	Total 6-11 years	Boys 6-11 years	Girls 6-11 years
		6	7	8	9	10	11					
Abnormal	Rate per 100 children									Standard error in percent		
Less than $3,000	16.6	16.8	18.7	17.1	12.2	19.6	14.8	17.1	16.1	2.43	2.22	3.09
$3,000-$4,999	17.5	19.0	22.2	16.3	16.9	12.0	17.5	21.5	13.1	2.34	2.56	2.31
$5,000-$6,999	15.8	17.5	13.8	12.6	18.1	15.8	17.2	16.1	15.6	1.89	2.15	2.11
$7,000-$9,999	11.4	11.4	14.4	10.4	10.1	9.8	11.8	9.8	13.3	1.64	1.32	2.16
$10,000-$14,999	11.0	10.4	13.6	9.9	13.4	8.8	10.2	12.9	9.0	1.85	2.33	2.10
$15,000 or more	18.6	17.2	22.8	28.6	11.6	10.0	16.7	20.6	16.1	3.01	3.65	4.63
Bulging or retracted												
Less than $3,000	8.5	8.6	8.2	8.3	6.1	10.8	9.3	9.7	7.4	2.23	2.55	2.11
$3,000-$4,999	9.2	10.2	7.5	9.1	9.4	7.4	11.4	11.4	6.8	1.86	2.38	1.68
$5,000-$6,999	7.4	10.0	5.9	5.8	6.2	9.4	7.5	8.2	6.7	1.04	1.22	1.20
$7,000-$9,999	5.7	7.0	7.6	3.6	5.2	5.0	5.7	4.0	7.5	1.12	0.78	1.67
$10,000-$14,999	6.0	5.2	9.9	5.3	7.2	3.0	6.0	6.7	5.4	1.68	1.70	1.82
$15,000 or more	4.0	5.5	6.5	1.6	4.0	-	5.0	4.3	3.6	1.55	1.19	2.51
Not mobile												
Less than $3,000	5.4	3.2	4.6	5.3	6.4	6.6	6.4	7.5	3.4	1.58	2.19	1.17
$3,000-$4,999	5.7	6.0	6.7	4.7	6.8	3.1	6.5	5.8	5.6	2.03	2.03	2.31
$5,000-$6,999	6.0	5.8	6.0	7.0	6.2	6.8	4.6	7.0	5.1	1.48	1.68	1.53
$7,000-$9,999	4.8	3.1	7.4	5.6	4.8	3.0	4.6	4.3	5.3	1.54	1.65	1.57
$10,000-$14,999	5.5	5.7	9.3	4.0	4.0	7.8	2.5	6.0	5.0	2.07	1.97	2.68
$15,000 or more	4.6	4.2	2.0	6.6	4.6	1.5	7.5	4.6	4.7	1.99	2.48	2.49
Completely occluded												
Less than $3,000	10.2	8.8	11.2	8.4	12.9	10.8	9.3	9.9	10.6	1.03	1.51	1.51
$3,000-$4,999	7.5	8.4	8.4	6.4	8.7	8.0	5.2	5.9	9.2	1.08	0.92	1.85
$5,000-$6,999	8.0	7.8	11.0	7.1	9.1	5.8	7.0	8.6	7.5	0.62	1.05	0.92
$7,000-$9,999	6.4	10.6	5.5	6.3	7.4	4.1	4.4	5.4	7.4	0.74	1.05	0.97
$10,000-$14,999	5.1	7.2	5.4	4.1	6.5	4.3	3.2	4.8	5.5	0.93	1.01	1.25
$15,000 or more	5.1	11.3	6.2	4.3	1.2	2.7	4.5	5.9	4.2	1.60	2.40	1.79

Table 11. Prevalence rates per 100 children of findings from examination of the tonsils and oral pharynx by race, age, and sex, with total standard errors: United States, 1963-65

Examination findings and race	Ages 6-11	Age in years						Boys 6-11 years	Girls 6-11 years	Total 6-11 years	Boys 6-11 years	Girls 6-11 years
		6	7	8	9	10	11					
Tonsils	Rate per 100 children									Standard error in percent		
Removed:												
White	15.7	11.0	12.2	17.2	18.4	17.2	18.5	16.9	14.5	1.24	1.45	1.19
Negro	2.7	3.6	2.0	4.5	1.3	3.0	1.8	2.6	2.9	0.80	1.05	0.73
Tags:												
White	10.5	8.6	8.4	10.8	10.4	12.3	12.6	11.6	9.5	1.86	1.89	1.92
Negro	3.5	1.9	4.4	2.4	1.8	4.5	6.1	3.5	3.5	0.69	1.10	1.02
Grade I:												
White	40.2	40.2	40.8	39.7	38.0	40.0	42.5	38.5	41.8	1.82	2.11	1.70
Negro	49.5	52.3	50.5	52.0	38.9	53.6	49.2	47.7	51.2	4.86	5.03	5.17
Grade II:												
White	32.4	38.0	36.6	31.4	32.5	29.4	25.8	31.9	32.9	1.86	1.95	1.98
Negro	43.1	41.2	42.6	39.1	55.1	38.4	42.8	44.7	41.5	5.23	5.49	5.29
Grade III:												
White	1.2	2.0	2.0	0.8	0.6	1.0	0.6	1.0	1.3	0.23	0.25	0.33
Negro	1.2	1.0	0.4	2.0	2.8	0.6	-	1.4	0.9	0.32	0.45	0.33
Oral pharynx												
Abnormality:												
White	10.2	10.6	9.2	10.0	11.3	9.6	10.6	10.9	9.5	1.77	1.76	1.89
Negro	8.4	9.8	6.4	7.7	10.6	8.6	7.5	7.8	9.0	1.89	2.20	2.13

Table 12. Prevalence rates per 100 children of findings from examination of the tonsils and oral pharynx by region, age, and sex, with total standard errors: United States, 1963-65

Examination finding and region	Ages 6-11	Age in years						Boys 6-11 years	Girls 6-11 years	Total 6-11 years	Boys 6-11 years	Girls 6-11 years
		6	7	8	9	10	11					
Tonsils	Rate per 100 children									Standard error in percent		
Removed:												
Northeast	18.3	11.2	16.2	21.0	20.2	18.4	23.6	19.6	16.9	2.06	3.01	1.54
Midwest	16.4	16.7	13.0	15.9	16.4	17.7	18.6	17.5	15.2	1.71	2.04	1.94
South	8.0	4.8	4.4	10.3	8.6	11.2	8.8	9.4	6.5	1.92	2.25	1.97
West	12.7	7.1	8.2	14.1	19.0	14.0	14.4	12.9	12.6	3.35	3.67	3.26
Tags:												
Northeast	10.7	10.0	10.0	9.0	11.5	13.6	11.0	13.7	7.8	1.46	1.32	2.05
Midwest	8.1	4.2	5.4	11.0	7.1	9.3	12.0	8.0	8.3	1.06	1.45	0.84
South	3.4	1.2	3.2	3.0	3.4	3.9	5.8	3.8	3.0	0.93	1.38	0.89
West	16.1	15.2	13.6	14.5	16.5	18.6	17.9	16.5	15.6	5.70	5.63	5.97
Grade I:												
Northeast	39.0	41.8	40.8	37.6	35.5	38.6	38.6	37.2	40.8	4.96	6.19	4.33
Midwest	36.5	35.7	36.0	38.2	36.4	35.8	37.2	35.3	37.9	1.41	1.72	1.99
South	50.4	48.8	50.8	50.4	44.6	52.3	55.6	47.3	53.6	3.94	3.97	3.96
West	40.8	41.7	43.1	40.8	36.2	40.8	42.4	40.4	41.3	6.44	6.69	6.26
Grade II:												
Northeast	31.4	36.6	31.6	31.6	31.9	29.3	26.4	28.8	33.9	3.98	4.46	4.20
Midwest	37.7	41.5	42.3	34.2	39.8	36.2	32.2	37.9	37.5	1.81	2.10	2.33
South	36.9	42.8	40.8	34.7	41.6	31.9	28.4	38.4	35.3	5.52	5.69	5.61
West	28.9	33.1	33.6	29.8	27.6	24.7	24.6	28.8	29.0	4.41	4.43	4.65
Grade III:												
Northeast	0.6	0.7	1.2	0.8	1.0	-	0.3	0.6	0.7	0.19	0.27	0.26
Midwest	1.2	1.5	3.3	0.6	0.4	1.0	-	1.2	1.1	0.55	0.66	0.62
South	1.3	2.2	0.8	1.6	1.8	0.6	1.2	1.1	1.6	0.34	0.26	0.72
West	1.4	3.0	1.4	1.0	0.8	1.9	0.6	1.4	1.5	0.77	0.67	1.02
Oral pharynx												
Abnormality:												
Northeast	7.2	7.3	6.7	6.5	8.5	6.6	7.6	8.0	6.3	1.06	1.09	1.15
Midwest	13.3	14.0	12.8	12.8	15.9	12.0	12.4	13.4	13.2	5.31	5.46	5.32
South	6.9	8.6	7.1	7.4	7.8	7.2	3.2	7.8	6.1	1.95	1.77	2.33
West	11.6	11.6	7.8	11.2	11.6	10.8	16.2	12.0	11.2	4.37	4.65	4.19

Table 13. Prevalence rates per 100 children of findings from examination of the tonsils and oral pharynx by family income, age, and sex, with total standard errors: United States, 1963-65

Examination finding and annual family income	Ages 6-11	Age in years						Boys 6-11 years	Girls 6-11 years	Total 6-11 years	Boys 6-11 years	Girls 6-11 years
		6	7	8	9	10	11					
Tonsils	Rate per 100 children									Standard error in percent		
Removed:												
Less than $3,000----	4.7	2.6	2.0	3.6	5.6	8.3	5.7	4.9	4.5	1.19	1.25	1.50
$3,000-$4,999-------	10.0	9.4	7.4	8.9	12.8	8.4	14.2	10.6	9.4	1.42	1.72	1.77
$5,000-$6,999-------	18.3	15.8	15.4	21.0	21.2	18.6	18.4	19.8	16.8	1.52	1.94	1.78
$7,000-$9,999-------	18.7	14.2	15.5	21.4	19.4	19.6	22.6	20.2	17.2	1.54	1.99	1.45
$10,000-$14,999-----	17.5	9.0	8.2	20.0	21.0	22.2	22.2	19.7	15.1	2.18	2.81	2.47
$15,000 or more-----	13.8	5.4	9.6	24.8	12.4	16.1	13.8	11.9	16.0	2.04	2.60	4.06
Tags:												
Less than $3,000----	5.8	4.4	4.0	6.9	4.5	5.2	10.4	6.9	4.8	1.39	2.00	1.47
$3,000-$4,999-------	6.1	8.0	5.8	4.4	6.6	6.0	6.4	5.1	7.2	1.89	2.09	1.97
$5,000-$6,999-------	10.5	6.4	7.6	9.4	10.4	14.4	15.8	11.8	9.2	1.78	2.05	1.82
$7,000-$9,999-------	12.9	8.4	10.4	17.9	15.4	13.0	11.0	13.7	12.0	2.35	2.37	2.53
$10,000-$14,999-----	10.9	10.4	8.6	8.0	9.2	13.8	15.2	12.4	9.2	1.52	1.95	1.83
$15,000 or more-----	9.7	5.0	12.0	7.6	5.1	17.0	10.2	10.6	8.5	1.76	2.55	1.99
Grade I:												
Less than $3,000----	48.9	47.4	52.9	48.0	42.0	49.7	53.6	47.5	50.3	2.77	3.29	2.71
$3,000-$4,999-------	45.5	43.8	43.8	46.8	43.9	46.7	47.4	46.9	43.9	3.11	3.78	3.13
$5,000-$6,999-------	36.4	38.2	38.2	35.0	33.0	36.0	37.5	32.6	40.2	2.56	3.42	2.82
$7,000-$9,999-------	39.8	42.5	43.8	36.4	34.7	40.9	43.9	38.0	41.8	2.68	2.76	3.16
$10,000-$14,999-----	37.9	39.0	39.2	45.4	35.2	35.5	35.0	36.4	39.5	2.86	3.24	3.24
$15,000 or more-----	42.9	38.4	28.5	41.2	57.4	48.1	43.2	44.8	40.6	2.00	2.97	3.70
Grade II:												
Less than $3,000----	38.9	42.0	40.4	40.8	46.0	35.2	29.1	39.2	38.6	3.46	3.96	3.59
$3,000-$4,999-------	37.2	36.6	42.4	38.4	36.7	36.6	31.6	36.4	38.2	2.80	3.54	2.77
$5,000-$6,999-------	33.6	37.6	36.8	34.0	33.8	30.4	27.7	34.7	32.6	2.56	3.66	2.41
$7,000-$9,999-------	27.7	34.2	28.7	23.2	30.2	26.1	22.4	27.4	28.0	2.42	2.45	2.98
$10,000-$14,999-----	32.0	39.1	37.7	25.4	34.7	28.5	26.4	29.6	34.6	1.64	2.16	3.04
$15,000 or more-----	33.4	51.8	49.9	26.4	23.8	18.8	32.8	32.3	34.8	2.52	3.10	5.37
Grade III:												
Less than $3,000----	1.7	3.6	0.6	0.7	1.9	1.6	1.2	1.5	1.8	0.46	0.51	0.94
$3,000-$4,999-------	1.1	2.1	0.4	1.4	-	2.4	0.4	1.0	1.3	0.42	0.50	0.47
$5,000-$6,999-------	1.2	1.8	2.0	0.5	1.5	0.6	0.4	1.1	1.2	0.34	0.43	0.53
$7,000-$9,999-------	0.8	0.8	1.6	1.2	0.8	0.3	-	0.7	0.9	0.26	0.24	0.38
$10,000-$14,999-----	1.5	1.4	6.0	1.2	-	-	1.0	1.5	1.5	0.60	0.61	0.94
$15,000 or more-----	0.2	-	-	-	1.2	-	-	0.4	-	0.20	0.36	-
Oral pharynx												
Abnormality:												
Less than $3,000----	8.8	10.4	4.8	11.8	11.3	10.2	4.6	9.3	8.4	1.60	2.04	1.50
$3,000-$4,999-------	9.8	11.2	9.6	10.4	9.2	9.0	9.5	10.2	9.4	1.52	1.73	1.64
$5,000-$6,999-------	11.0	9.4	9.3	11.3	14.2	11.4	10.0	12.0	9.9	2.30	2.66	2.29
$7,000-$9,999-------	9.5	10.0	9.0	10.7	8.4	7.8	10.1	9.7	9.2	2.24	2.67	2.13
$10,000-$14,999-----	10.7	11.6	15.8	4.6	10.2	9.8	12.8	11.2	10.2	2.17	2.17	2.62
$15,000 or more-----	10.2	6.3	6.2	9.6	12.1	9.9	16.5	11.1	9.0	2.07	1.60	3.74

APPENDIX I

STATISTICAL NOTES

The Survey Design

The sample design for the second cycle of the Health Examination Survey, similar to the one used for the first cycle, was that of a multistage, stratified probability sample of loose clusters of persons in land-based segments. Successive elements dealt with in the process of sampling are primary sampling unit (PSU), census enumeration district (ED), segment, household, eligible child (EC), and finally, the sample child (SC).

At the first stage, the nearly 2,000 PSU's into which the United States (including Hawaii and Alaska) has been divided and then grouped into 357 strata for use in the Current Population Survey and the Health Interview Survey were further grouped into 40 superstrata for use in Cycle II of the Health Examination Survey. The average size of each Cycle II stratum was 4.5 million persons, and all strata fell between the limits of 3.5 and 5.5 million. Grouping into 40 strata was done in a way that maximized homogeneity of the PSU's included in each stratum, particularly with regard to degree of urbanization, geographic proximity, and and degree of industrialization. The 40 strata were classified into four broad geographic regions (each with 10 strata) of approximately equal population and cross-classified into 4 broad population density groups (each having 10 strata). Each of the 16 cells contained either two or three strata. A single stratum might include only one PSU, only part of a PSU (e.g., New York City, which represents two strata), or several score PSU's.

To take account of the possible effect that the rate of population change between the 1950 and 1960 Census might have had on health, the 10 strata within each region were further classified into four classes ranging from those with no increase to those with the greatest relative increase. Each such class contained either two or three strata.

One PSU was then selected from each of the 40 strata. A controlled selection technique was used in which the probability of selection of a particular PSU was proportional to its 1960 population. In the controlled selection an attempt was also made to maximize the spread of the PSU's among the States. While not every one of the 64 cells in the 4x4x4 grid contributes a PSU to the sample of 40 PSU's, the controlled selection technique ensured the sample's matching the marginal distributions in all three dimensions and being closely representative of all cross-classifications.

Generally, within a particular PSU, 20 ED were selected with the probability of selection of a particular ED proportional to its population in the age group 5-9 years in the 1960 Census, which by 1963 roughly approximated the population in the target age group for Cycle II. A similar method was used for selecting one segment (cluster of households) in each ED. Each of the resultant 20 segments was either a bounded area or a cluster of households (or addresses). All the children in the age range properly resident at the address visited were EC. Operational considerations made it necessary to reduce the number of prospective examinees at any one location to a maximum of 200. The EC

to be excluded for this reason from the SC group were determined by systematic subsampling.

The total sample included 7,417 children from 25 different States in the age group 6-11 years with approximately 1,000 in each of the single years of age.

Reliability

Measurement processes employed in the survey were highly standardized and closely controlled. Of course this does not mean that the correspondence between the real world and the survey results is exact. Data from the survey are imperfect for three major reasons: (1) results are subject to sampling error, (2) the actual conduct of a survey never agrees perfectly with the design, and (3) the measurement processes themselves are inexact even though standardized and controlled.

The first report on Cycle II[4] described in detail the faithfulness with which the sampling design was carried out. It notes that out of the 7,417 sample children the 7,119 who were examined—a response rate of 96 percent—gave evidence that they were a highly representative sample of children of this age in the noninstitutional population of the United States. The response levels for the various demographic subgroups—including those for age, sex, race, region, population density, parent's educational level, and family income—show no marked differentials. Hence it appears unlikely that nonresponse could bias the findings much in these respects.

Measures used to control the quality of data from this survey in general and for the hearing tests specifically have been cited previously.

Data recorded for each sample child are inflated in the estimation process to characterize the larger universe of which the sample child is representative. The weights used in this inflation process are a product of the reciprocal of the probability of selecting the child, an adjustment for nonresponse cases, and a poststratified ratio adjustment which increases precision by bringing survey results into closer alignment with known U.S. population figures by color and sex within single years of age 6-11.

In the second cycle of the Health Examination Survey, the sample was the result of three stages of selection—the single PSU from each stratum, the 20 segments from each sample PSU, and the sample children from the eligible children. The probability of selecting an individual child is the product of the probability of selection at each stage.

Since the strata are roughly equal in population size and a nearly equal number of sample children were examined in each of the sample PSU's, the sample design is essentially self-weighting with respect to the target population; that is, each child 6-11 years old had about the same probability of being drawn into the sample.

The adjustment upward for nonresponse is intended to minimize the impact of nonresponse on final estimates by imputing to nonrespondents the characteristics of "similar" respondents. Here "similar" respondents were judged to be examined children in a sample PSU having the same age (in years) and sex as children not examined in that sample PSU.

The poststratified ratio adjustment used in the second cycle achieved most of the gains in precision which would have been attained if the sample had been drawn from a population stratified by age, color, and sex and made the final sample estimates of population agree exactly with independent controls prepared by the Bureau of the Census for the noninstitutional population of the United States as of August 1, 1964 (approximate midsurvey point), by color and sex for each single year of age 6 through 11. The weights of every responding sample child in each of the 24 age, color, and sex classes is adjusted upward or downward so that the weighted total within the class equals the independent population control.

Sampling and Measurement Error

In the present report, reference has been made to efforts to minimize bias and variability of measurement techniques.

The probability design of the survey makes possible the calculation of sampling errors. The

sampling error is used here to determine how imprecise the survey test results may be because they come from a sample rather than from the measurements of all elements in the universe.

The estimation of sampling errors for a study of the type of the Health Examination Survey is difficult for at least three reasons: (1) measurement error and "pure" sampling error are confounded in the data—it is not easy to find a procedure which will either completely include both or treat one or the other separately, (2) the survey design and estimation procedure are complex and accordingly require computationally involved techniques for the calculation of variances, and (3) from the survey are coming thousands of statistics, many for subclasses of the population for which there are a small number of cases. Estimates of sampling error are obtained from the sample data and are themselves subject to sampling error which may be large when the number of cases in a cell is small or even occasionally when the number of cases is substantial.

Estimates of approximate sampling variability for selected statistics used in this report are presented in the detailed tables. These estimates have been prepared by a replication technique which yields overall variability through observation of variability among random subsamples of the total sample. The method reflects both "pure" sampling variance and a part of the measurement variance.

In accordance with usual practice, the interval estimate for any statistic may be considered the range within one standard error of the tabulated statistic with 68-percent confidence, or the range within two standard errors of the tabulated statistic with 95-percent confidence. The latter is used as the level of significance in this report.

An approximation of the standard error of a difference $d = x - y$ of the two statistics x and y is given by the formula $S_d = (S_x^2 + S_y^2)^{1/2}$ where S_x and S_y are the sampling errors, respectively, of x and y, shown in the detailed tables.

Small Categories

In some tables magnitudes are shown for cells for which the sample size is so small that the sampling error may be several times as great as the statistic itself. Obviously, in such instances the statistic has no meaning in itself except to indicate that the true quantity is small. Such numbers, if shown, have been included in the belief that they may help to convey an impression of the overall story of the table.

APPENDIX II

DEMOGRAPHIC AND SOCIOECONOMIC TERMS

Age.—The age recorded for each child was the age at last birthday on the date of examination. The age criterion for inclusion in the sample used in this survey was defined in terms of age at time of interview. Since the examination usually took place 2 to 4 weeks after the interview, some of those who were 11 years old at the time of interview became 12 years old by the time of examination. There were 72 such cases. In the adjustment and weighting procedures used to produce national estimates, these 72 were included in the 11-year-old group.

Race.—Race was recorded as "white," "Negro," or "other races." The last category included American Indians, Chinese, Japanese, and all races other than white or Negro. Mexican persons were included with "white" unless definitely known to be American Indian or of another race. Negroes and persons of mixed Negro and other parentage were recorded as "Negro."

Geographic region.—For purposes of stratification the United States was divided into four broad geographic regions of approximately equal population. These regions, which correspond closely to those used by the U.S. Bureau of the Census, were as follows:

Region	*States Included*
Northeast	Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey and Pennsylvania
Midwest	Ohio, Illinois, Indiana, Michigan, Wisconsin, Minnesota, Iowa and Missouri
South	Delaware, Maryland, District of Columbia, West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana and Arkansas
West	Washington, Oregon, California, Nevada, New Mexico, Arizona, Texas, Oklahoma, Kansas, Nebraska, North Dakota, South Dakota, Idaho, Utah, Colorado, Montana, Wyoming, Alaska and Hawaii

Urban and rural areas.—The definition of urban and rural areas was the same as that used in the 1960 Census. According to this definition, the urban population was comprised of all persons living in (a) places of 2,500 inhabitants or more incorporated as cities, boroughs, villages, and towns (except towns in New England, New York, and Wisconsin); (b) the densely settled urban fringe, whether incorporated or unincorporated, of urbanized areas; (c) towns in New England and townships in New Jersey and Pennsylvania which contained no incorporated municipalities as subdivisions and had either 2,500 inhabitants or more, or a population of 2,500 to 25,000 and a density of 1,500 persons or more per square mile; (d) counties in States other than the New England States, New Jersey, and Pennsylvania that had no incorporated municipalities within their boundaries and had a density of 1,500 persons or more per square mile; and (e) unincorporated places of 2,500 inhabitants or more not included in any urban fringe. The remaining population was classified as rural.

. Urban areas are further classified by population size for places within urbanized areas and other urban places outside urbanized areas.

Education of parent or guardian.—The highest grade completed in school was recorded. The only grades counted were those attended in a regular public or private school where persons were given formal education, whether during the day or at night, and whether attendance was full or part time. A "regular" school is one which advances a person toward an elementary or high school diploma, or a college, university, or professional school degree. Education in vocational, trade, or business schools outside the regular school system was not counted in determining the highest grade of school completed.

Family income.—The income recorded was the total income received during the past 12 months by the head of the household and all other household members related to the head by blood, marriage, or adoption. This income was the gross cash income (excluding pay in kind) except in the case of a family with its own farm or business, in which case net income was recorded.

Parent.—A parent was the natural parent or, in the case of adoption, the legal parent of the child.

Guardian.—A guardian was responsible for the care and supervision of the child. He (or she) did not have to be the legal guardian to be considered the guardian for this survey. A guardianship could only exist when the parent(s) of the child did not reside within the sample household.

Head of household.—Only one person in each household was designated as the "head." He (or she) was the person who was regarded as the "head" by the members of the household. In most cases the head was the chief breadwinner of the family although this was not always true. In some cases the head was the parent of the chief earner or the only adult member of the household.

APPENDIX III

EXAMINATION AND HISTORY ITEMS

HEALTH EXAMINATION SURVEY—II

ENT EXAMINATION

CARD 09-1

EXTERNAL EAR

R ☐ L ☐ 1 No findings

☐ (6) ☐ (7) 2 Findings →

PINNA
R ☐ L ☐ 1 Congenital
☐ (8) ☐ (9) 2 Acquired (Describe)

AURICULAR REGION
R ☐ L ☐ 1 Posterior
☐ (10) ☐ (11) 2 Anterior
R ☐ L ☐ Adenopathy
R ☐ L ☐ Operative scar
R ☐ L ☐ Fistula

AUDITORY CANAL

R ☐ L ☐ 1 No findings

☐ (12) ☐ (13) 2 Findings →

OCCLUDED
R ☐ L ☐ 1 Partially
☐ (14) ☐ (15) 2 Completely

OCCLUDED BY:
R ☐ L ☐ Cerumen
R ☐ L ☐ Foreign body
R ☐ L ☐ Tumor
R ☐ L ☐ Polyp
R ☐ L ☐ Bony exostosis
R ☐ L ☐ Anomalous canal
R ☐ L ☐ Inflammation
R ☐ L ☐ Other (Describe)

DRUM

R ☐ L ☐ 1 No findings

☐ ☐ 2 Findings →

☐ (16) ☐ (17) 3 Not visible

R ☐ L ☐ (20) (21) 1 Dull
☐ (24) ☐ (25) 2 Retracted

R ☐ L ☐ 1 Transparent
☐ (22) ☐ (23) 2 Opaque
R ☐ L ☐ 1 Red
☐ (26) ☐ (27) 2 Other discolorations

DRUM MOBILE?

R ☐ L ☐ 1 Yes

☐ ☐ 2 No

☐ (18) ☐ (19) 3 Pneumatic otoscopy unsatisfactory

PERFORATED:
☐ ☐ 1 With discharge
☐ (28) ☐ (29) 2 Without discharge
☐ (30) ☐ (31) 1 Scars

R ☐ L ☐ Cholesteatomata
R ☐ L ☐ Tumor (Middle ear)
R ☐ L ☐ Other .....

E.N.T. 1

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SAMPLE NO. (1-5)

HEALTH EXAMINATION SURVEY—II

ENT EXAMINATION

CARD 05-2

TONSILS

☐ 1 Removed completely

☐ 2 Tonsillar tags present

☐ 3 Tonsils present—Grade I (Within tonsillar pillars)

☐ 4 Tonsils present—Grade II (Outside tonsillar pillars but not meeting in midline)

☐ 5 Tonsils present—Grade III (Meeting in midline) (32)

ORAL PHARYNX

☐ 1 No findings

☐ 2 Findings (33) →

CLEFT PALATE

☐ 1 Repaired

☐ 2 Unrepaired (34)

☐ 1 Hypertrophic lymphoid tissue on post. pharyng. wall (35)

☐ 1 Heavy postnasal discharge (36)

☐ 1 Other ..... (37)

NOSE

R L

☐ ☐ 1 No findings

☐ (38) ☐ (39) 2 Findings →

R L

☐ (40) ☐ (41) 1 Deviated septum

R L

☐ (42) ☐ (43) 1 Hypertrophied turbinates

R L

☐ (44) ☐ (45) 1 Polyps

R L

☐ (46) ☐ (47) 1 Obstruction

☐ 1 Profuse discharge (48)

☐ 1 Swollen tissue (49)

Mouth breathing

☐ 1 Acute

☐ 2 Chronic (50)

☐ 1 Other ..... (51)

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2-64

SAMPLE NO.

CONFIDENTIAL – *The National Health Survey is authorized by Public Law 652 of the 84th Congress (70 Stat. 489; 42 U.S.C. 242c). All information which would permit identification of the individual will be held strictly confidential, will be used only by persons engaged in and for the purposes of the survey and will not be disclosed or released to others for any other purposes (22 FR 1687).*

FORM APPROVED
BUDGET BUREAU NO. 68-R020-64.6

DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL HEALTH SURVEY

HES-256

(1-5) _____

CHILD'S MEDICAL HISTORY - Parent

NAME OF CHILD *(Last, First, Middle)* (6-11)	SEGMENT	SERIAL	COL. NO.

43. DOES YOUR CHILD HAVE ANY TROUBLE HEARING?
1 ☐ Yes 2 ☐ No 3 ☐ Don't know

44. DOES HE(SHE) EVER HAVE EARACHES?
(54) 1 ☐ Yes 2 ☐ No 3 ☐ Don't know

45. HAS YOUR CHILD EVER HAD ANY INJURY OR DAMAGE TO HIS(HER) EARS?
(55) 1 ☐ Yes 2 ☐ No 3 ☐ Don't know
IF YES, in what way was his(her) ear injured? _____

46. HAS HE(SHE) EVER HAD HIS(HER) EAR DRUMS OPENED OR LANCED?
1 ☐ Yes 2 ☐ No 3 ☐ Don't know
IF YES, how many times?
1 ☐ Once only 2 ☐ Twice only 3 ☐ Three times or more

47. HAS HE(SHE) EVER HAD ANY OTHER KIND OF OPERATION ON THE EARS?
(56) 1 ☐ Yes 2 ☐ No 3 ☐ Don't know
IF YES, what was it for? _____

48. HAS THIS CHILD EVER HAD A RUNNING EAR OR ANY DISCHARGE FROM HIS EARS (Not counting wax in the ears)?
(59) 1 ☐ Yes 2 ☐ No 3 ☐ Don't know
IF YES:
A. How often has he(she) had this?
1 ☐ Once only 2 ☐ Twice only 3 ☐ Three or more times 4 ☐ Don't know
B. Was this his(her) left ear, right ear, or both ears?
1 ☐ Left 2 ☐ Right 3 ☐ Both 4 ☐ Don't know

49. HAS HE(SHE) EVER HAD ANY OTHER KIND OF TROUBLE WITH HIS(HER) EARS?
1 ☐ Yes 2 ☐ No 3 ☐ Don't know
IF YES, what kind of trouble? _____

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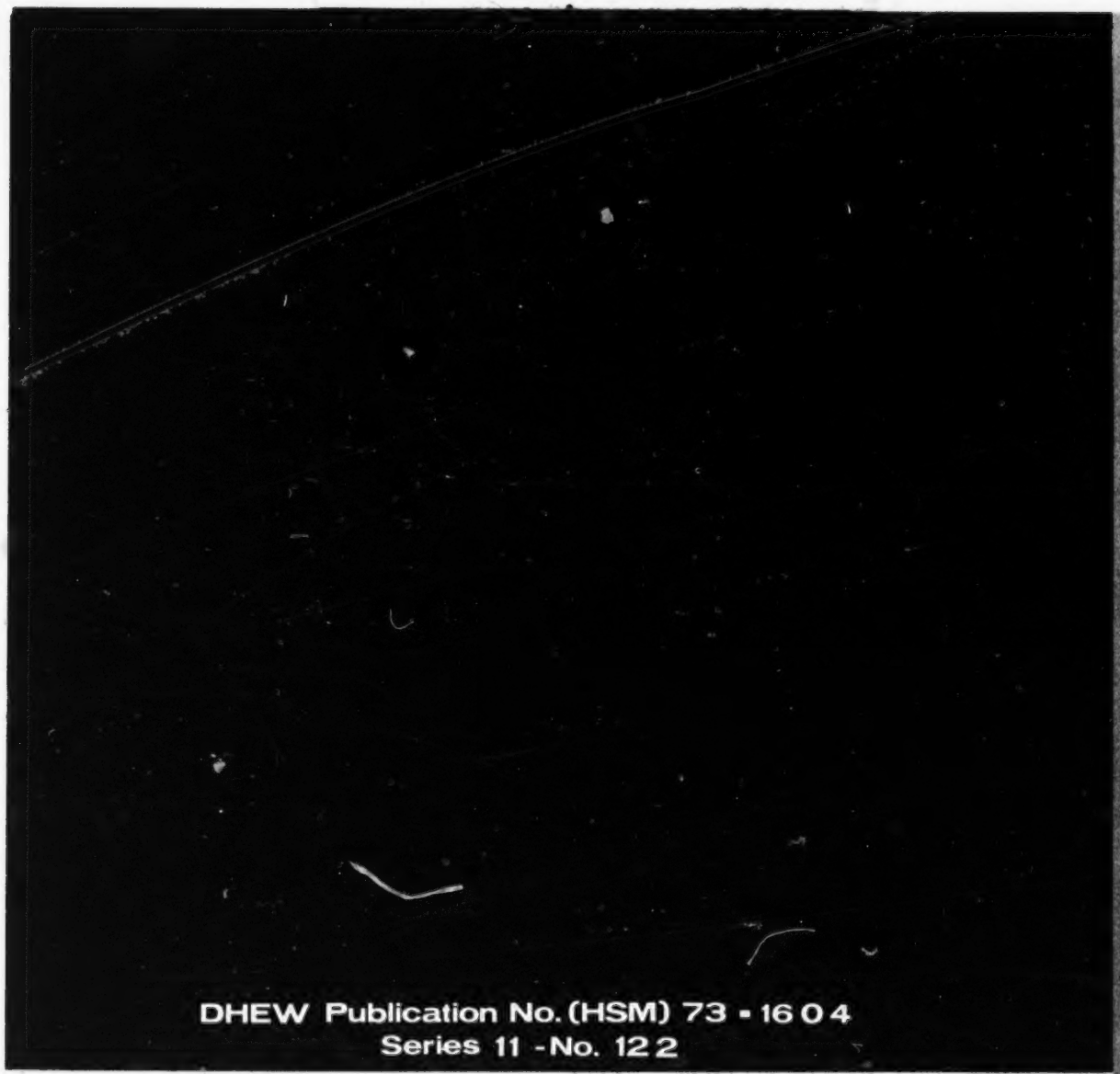

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